

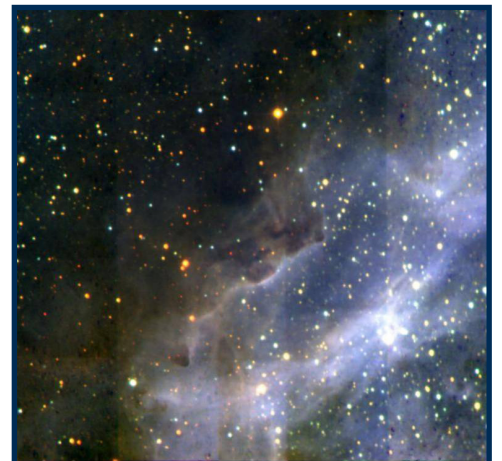


# UIST

UIST, the UKIRT Imaging SpecTrometer, is a near infrared imaging-spectrometer for astronomy, developed and built at the UK ATC and installed on the UK Infrared Telescope (UKIRT). It uses an 'ALADDIN' detector array, sensitive to wavelengths from 1 to 5µm. It is designed to have high angular resolution capabilities for both imaging and spectroscopy. In addition, it includes a cryogenic Integral Field Unit, giving 3-D spectroscopic capabilities.



- long (120") slit spectroscopy with angular resolutions as high as 0.24" and resolving powers as high as 2000–5000 at 1–5µm.
- integral field spectroscopy over a 3.3" x 6.0" field with an angular resolution of 0.24".
- imaging polarimetry and spectropolarimetry with a field of view of 20".



First light image: M17 (Omega Nebula)

## Specifications

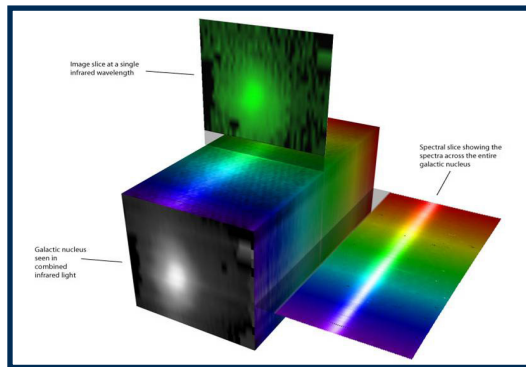
UIST operates in the near infrared wavelength region between 1 and 5µm, with a 1024 x 1024 pixel detector array. It can be used for imaging, long slit spectroscopy, integral field spectroscopy, and polarimetry.

UIST can switch rapidly from imaging to spectroscopy. A novel aspect of the instrument is the incorporation of a unique design of cryogenically cooled Integral Field Unit.

UIST provides the following capabilities:

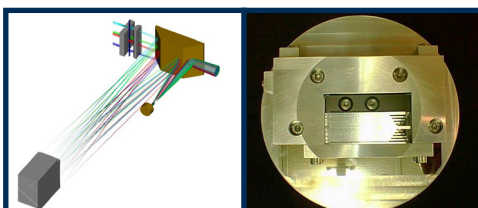
- imaging at high angular resolution : 0.12" (0.06") over a 2'x2' (1'x1') field.

Due to its fine pixel scales, UIST enables astronomers to take advantage of the better image quality that resulted from the UKIRT Image Upgrades Programme (completed in 1998).



## The Integral Field Unit

The UIST integral field unit uses a complex, high precision optical system designed at UK ATC to perform spectroscopy over a contiguous 2-dimensional region of sky, such as the active galactic nucleus shown in the image above.



The optical layout of the IFU and the image slicing mirror.

## Science

These capabilities are used for a wide variety of studies from velocity structure and evolution of young star disks, to understanding the dynamics and physical processes in starburst galaxies and active galactic nuclei.

UIST was delivered to UKIRT in Hawaii in July 2002, and achieved first light in September 2002.

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